

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A method of switching,
comprising:

receiving an input data stream carrying plural tributary
payloads from an external input link, each of the plural tributary
5 payloads capable of being switched in space and time;

writing input columns of the input data stream to a
common buffer according to a write pointer; and

in parallel with writing, reading from the common buffer
to output columns of an output data stream according to a read
10 pointer, the read pointer selecting, for each of the output
columns, an input column from a limited portion of the common
buffer that contains a set of the input columns that are capable of
being switched in time to the corresponding output column according
to a communication protocol and maintaining an order of input
15 columns within each of the plural tributary payloads.

2. (ORIGINAL) The method of claim 1 wherein the
limited portion of the buffer depends on a corresponding location
of the write pointer in the buffer, for each output column the
corresponding location of the write pointer and the limited portion

5 containing the set of input columns for reading being mutually exclusive.

3. (ORIGINAL) The method of claim 1 wherein each of the plural tributary payloads is characterized by an arbitrary type.

4. (CURRENTLY AMENDED) The method of claim 3 wherein each of the plural tributary payloads is characterized by a type selected from the group consisting of VT1.5, VT2, VT3 and ~~VT4~~ VT6.

5. (ORIGINAL) The method of claim 1 wherein each of the plural tributary payloads is characterized by a same type.

6. (ORIGINAL) The method of claim 1 wherein the communication protocol is SONET.

7. (CURRENTLY AMENDED) The method of claim 1 wherein each of the plural tributary payloads comprise an ordered set of input columns that are interleaved within a payload of the input data stream, ~~the method further comprising:~~

5 ~~in parallel with writing, reading from the common buffer to the output columns of the output data stream according to the~~

~~read pointer, the read pointer selecting, for each of the output
columns, an input column from a limited portion of the common
buffer that contains a set of the input columns that are capable of
being switched in time to the corresponding output column and
maintaining the order of the input columns within each of the
plural tributary payloads.~~

8. (CURRENTLY AMENDED) The method of claim 7 1 wherein
the input data stream is a frame having columns and rows and the
common buffer having a length substantially equal to a frame row.

9. (CURRENTLY AMENDED) The method of claim 8 further
comprising:

writing the input columns of the frame row into the
common buffer sequentially from a beginning location to an end
location of the common buffer according to the write pointer; and

in parallel with writing, reading the input columns from
the common buffer to the output columns of the output data stream,
the read pointer selecting, for each of the output columns, an
input column from a limited portion of the common buffer that
contains a set of the input columns that are capable of being
switched in time to the corresponding output column and maintaining
the order of the input columns within each of the plural tributary

payloads, the limited portion being a continuous range of buffer locations that depends on a corresponding location of the write
15 pointer in the common buffer.

10. (CURRENTLY AMENDED) The method of claim 8 wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 90N bytes.

11. (CURRENTLY AMENDED) The method of claim 7 1 wherein the input data stream is a frame having columns and rows and the common buffer having a length less than a frame row.

12. (CURRENTLY AMENDED) The method of claim 11 further comprising:

5 writing a first set of the input columns of the frame row into the common buffer sequentially from a beginning location to an end location of the buffer; and

further writing a second set of the input columns of the frame row sequentially from an intermediate location to an end location of the buffer, ~~and~~
~~in parallel with writing the first set and the second set~~
10 ~~of the input columns, reading the input columns from the common~~
~~buffer to the output columns of the output data stream, the read~~

~~pointer selecting, for each of the output columns, an input column
from a limited portion of the common buffer that contains a set of
the input columns that are capable of being switched in time to the
corresponding output column and maintaining the order of the input
columns within each of the plural tributary payloads, the limited
portion including buffer locations that depend on a corresponding
location of the write pointer in the buffer and whether the first
set or the second set of the input data units is being written.~~

13. (CURRENTLY AMENDED) The method of claim 11 wherein
the frame is an STS-N frame and the common buffer has a length
substantially equal to 62N bytes.

14. (CURRENTLY AMENDED) A switch comprising:

a plurality of inputs and a plurality of outputs;

each of the plurality of inputs receiving an input data
stream carrying plural tributary payloads from an external input
link, each of the plural tributary payloads capable of being
switched in space and time;

a write controller causing input columns of the input
data stream to be written to a common buffer according to a write
pointer; and

10 a read controller, in parallel with the write controller,
causing the input columns to be read from the common buffer to
output columns of an output data stream according to a read
pointer, the read pointer selecting, for each of the output
columns, an input column from a limited portion of the common
15 buffer that contains a set of the input columns that are capable of
being switched in time to the corresponding output column according
to a communication protocol and maintaining an order of input
columns within each of the plural tributary payloads.

15 15. (CURRENTLY AMENDED) The switch of claim 14 wherein
the limited portion of the common buffer depends on a corresponding
location of the write pointer in the common buffer, for each output
column the corresponding location of the write pointer and the
5 limited portion containing the set of input columns for reading
being mutually exclusive.

16. (ORIGINAL) The switch of claim 14 wherein each of
the plural tributary payloads is characterized by an arbitrary
type.

17. (CURRENTLY AMENDED) The switch of claim 16 wherein each of the plural tributary payloads is characterized by a type selected from the group consisting of VT1.5, VT2, VT3 and ~~VT4~~ VT6.

18. (ORIGINAL) The switch of claim 14 wherein each of the plural tributary payloads is characterized by a same type.

19. (ORIGINAL) The switch of claim 14 wherein the communication protocol is SONET.

20. (CURRENTLY AMENDED) The switch of claim 14 wherein:

each of the plural tributary payloads comprise an ordered set of input columns that are interleaved within a payload of the input data stream, ~~and~~

5 ~~the read controller, in parallel with write controller, causing the input columns from the common buffer to be read to the output columns of the output data stream according to the read pointer, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common~~
10 ~~buffer that contains a set of the input columns that are capable of being switched in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads.~~

21. (CURRENTLY AMENDED) The switch of claim ~~20~~ 14 wherein the input data stream is a frame having columns and rows and the common buffer having a length substantially equal to a frame row.

22. (CURRENTLY AMENDED) The switch of claim 21 wherein:
the write controller causes the input columns of the frame row to be written into the common buffer sequentially from a beginning location to an end location of the buffer according to
5 the write pointer;

the read controller, in parallel with the write controller, causes the input columns from the common buffer to be read to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column
10 from a limited portion of the common buffer that contains a set of the input columns that are capable of being switched in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads; and

the limited portion is a continuous range of buffer
15 locations that depends on a corresponding location of the write pointer in the common buffer.

23. (CURRENTLY AMENDED) The switch of claim 21 wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 90N bytes.

24. (CURRENTLY AMENDED) The switch of claim ~~20~~ 14 wherein the input data stream is a frame having columns and rows and the common buffer having a length less than a frame row.

25. (CURRENTLY AMENDED) The switch of claim 24 wherein:
the write controller causes a first set of the input columns of the frame row to be written into the common buffer sequentially from a beginning location to an end location of the
5 buffer; and

the write controller further causes a second set of the input columns of the frame row to be written sequentially from an intermediate location to an end location of the common buffer;

~~the read controller, in parallel with the write controller, causes the input columns from the common buffer to be read to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are capable of being switched in time to the~~

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15 ~~corresponding output column and maintaining the order of the input~~
~~columns within each of the plural tributary payloads, and~~
~~the limited portion includes buffer locations that depend~~
~~on a corresponding location of the write pointer in the buffer and~~
~~whether the first set or the second set of the input data units is~~
20 ~~being written.~~

26. (CURRENTLY AMENDED) The switch of claim 24 wherein
the frame is an STS-N frame and the common buffer has a length
substantially equal to 62N bytes.

27. (CURRENTLY AMENDED) A switch comprising:

a plurality of inputs and a plurality of outputs;

each of the plurality of inputs receiving an input data
stream carrying plural tributary payloads from an external input
5 link, each of the plural tributary payloads capable of being
switched in space and time;

a writing means for writing input columns of the input
data stream to a common buffer according to a write pointer; and

a read means for reading the input columns from common
10 buffer to output columns of an output data stream according to a
read pointer in parallel with the writing means, the read pointer
selecting, for each of the output columns, an input column from a

15 limited portion of the buffer that contains a set of the input columns that are capable of being switched in time to the corresponding output column according to a communication protocol and maintaining an order of input columns within each of the plural tributary payloads.

Please add the following new claims:

28. (NEW) The method of claim 12 further comprising:

in parallel with writing the first set and the second set of the input columns, reading the input columns from the common buffer to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are capable of being switched in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads, the limited portion including buffer locations that depend on a corresponding location of the write pointer in the common buffer and whether the first set or the second set of the input data units is being written.

29. (NEW) The switch of claim 25 wherein:

the read controller, in parallel with the write controller, causes the input columns from the common buffer to be read to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are capable of being switched in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads; and

the limited portion includes buffer locations that depend on a corresponding location of the write pointer in the common buffer and whether the first set or the second set of the input data units is being written.